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ABSTRACT

The Educators Exchange Program (EEP) was established under a training and educational exchange agreement reached by California's San Diego Community College District (SDCCD) and the republic of Mexico. In the program, the District provided a 4-week technological training program to faculty at Centros de Capacitacion Tecnologica Industrial (CECATI), or vocational training centers, in Guanajuato, Mexico. The general goals of the program included economic development, expanded training opportunities, and greater cultural understanding and were based upon literature reviews of the goals of similar programs conducted between U.S. community colleges and their counterparts in Mexico. EEP was unique, however, in that regional training needs in Guanajuato were carefully assessed, SDCCD instructors taught in CECATI training sites and local industries to better understand local conditions, and a classroom approach was used to train more instructors. Of the 61 instructors participating in training in summer 1994 sessions, 67% were male and 33.9% had completed at least some postsecondary technical training. Overall, participants were very pleased with the program, indicating on surveys that it was timely, relevant, and useful in improving their understanding of technological changes. They did express concerns, however, related to the lack of equipment and software, the short duration of the courses, room conditions, and problems with translation. The participant evaluation instrument, responses from course instructors' evaluations, and a program financial statement are appended. (TGI)

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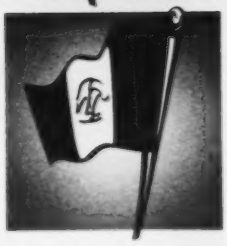
EDUCATORS EXCHANGE



Program Evaluation Report

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EDUCATORS EXCHANGE:

A PROGRAM EVALUATION

An evaluation of a vocational teaching exchange conducted within the scope of the formal, cooperative agreement between the San Diego Community College District and the Centros de Capacitacion Technologica Industrial vocational training institutes of Mexico with funding from the Ford Foundation

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EXECUTIVE SUMMARY

In November 1993, the San Diego Community College District (SDCCD) and the republic of Mexico formally entered into a training, technology, and educational exchange pact. The agreement was signed in Tijuana by Chancellor Augustine P. Gallego and governing board president Maria Nieto Senour for the SDCCD and by the then-Secretary of Public Education for the republic of Mexico, Ernesto Zedillo[1]. This agreement, made in the spirit and anticipation of the North American Free Trade Agreement (NAFTA), is intended to improve economic development and cultural exchange and understanding between the U.S. and Mexico. This agreement allows the SDCCD to enter into contract education to add the latest technology to Mexico's training programs, and to conduct exchange compacts with any of the 200 Centros de Capacitacion Technologica Industrial (CECATIs) vocational training centers located throughout the republic of Mexico. The first project completed under this agreement, the Educators Exchange Program (EEP), is the subject of this report.

This agreement represents the latest in a series of steps toward these goals and builds upon earlier efforts to improve bi-national cooperation and understanding while providing high quality, relevant training to Mexico by the SDCCD. The rewards from the NAFTA will be in large part because of small scale programs such as the Educators Exchange Program. Programs such as the EEP between the SDCCD and CECATIs predate the NAFTA by several years. Mutual assistance agreements between the two institutions started in the late 1970s. A brief description of some of these earlier programs is provided later in this report.

As indicated throughout this report, program participants were very pleased with the project.

The literature review suggested that the EEP's goals were in many ways similar to the goals for other agreements forged between U.S. community colleges and their counterparts in Mexico. As with these other programs, the EEP sought economic improvement, expanded training opportunities, greater cultural understanding, and trans-national cooperation. Also, many of the faculty exchange programs reviewed showed similar program objectives, such as greater cultural understanding, internationalizing the curriculum, language improvement, and knowledge of alternative educational delivery systems. These features and goals are found in practically all of the programs that were reviewed for this evaluation.

However, the EEP had some features unique to itself. First, it was based on a careful assessment of regional training needs of the Guanajuato CECATIs. The program sent SDCCD instructors to the CECATI training sites and private industries in Guanajuato to make the training more appropriate and the learning more transferable. This instructor-in-residence approach had the goal of making the

[1] *Ernesto Zedillo has since been elected President of Mexico*

SDCCD faculty more familiar with the conditions and challenges faced by their colleagues, and to make the instruction more directly relevant to the students. These students would then be better able to train others in the use of the existing equipment and facilities at their local CECATIs. This contextually-based training approach was found to be of greater value and was shown by the evaluation questionnaire to be highly relevant to the instructors receiving training.

Second, through a classroom approach, many more CECATI instructors could be trained on the uses of more modern equipment. At the same time, these instructors returning to their local CECATIs could better inform administrators and CECATI officials of the latest advances in these technologies and request the latest equipment and software. This would serve to help keep the CECATIs more current and to better meet the needs of an expanding and increasingly competitive industrial and market economy. These features distinguish the EEP from the other programs reviewed.

Since 1978, and prior to this recent Ford-sponsored effort, the SDCCD and CECATI have developed a long tradition of partnership and cooperation through a series of exchanges of increasing scope and complexity. They have forged strong ties from the early programs where used equipment and tools were donated to Mexico. Faculty exchanges generally brought CECATI instructors to facilities in the U.S. for teacher and experiential training. And, now, this latest program sent SDCCD faculty to train CECATI insturctors in Mexico.

Students in the EEP classes were CECATI instructors. They came to the program with extensive backgrounds and many years of instructional and industrial experience. The average age of the students was 34 (standard deviation=8.6), with an age range from 20 to 60 years of age. The vast majority were male, except in the Office Systems course, which was primarily female.

As indicated throughout this report, program participants were very pleased with the project. The clear majority of participants found the courses to be timely, relevant, helpful, and useful in improving their understanding of technological change and their ability to communicate this new learning to students. Most were very proud that they had been able to participate in this incipient, innovative program, and the overwhelming majority indicated that they would participate again. Their key concerns were in the areas of equipment and, in some cases, software availability in the Diesel and CAD courses; course duration; room conditions; and translation. These concerns paralleled those of the SDCCD faculty. The SDCCD faculty said that greater coordination was needed to resolve certain logistical problems with equipment availability. Also, while their Spanish had improved, they felt strongly that having a skilled translator on a consistent basis was critical to the success of the course and allowed them greater flexibility in dealing with the comprehension of course material. Overall, program participants, CECATI officials, and SDCCD faculty judged the program a resounding success in accomplishing its important goals.

INTRODUCTION

In November 1993, the San Diego Community College District and the republic of Mexico formally entered into a training, technology, and educational exchange pact. The agreement was signed in Tijuana by Chancellor Augustine P. Gallego and governing board president Maria Nieto Senour for the SDCCD and by the then-Secretary of Public Education for the republic of Mexico, Ernesto Zedillo[2]. This agreement, done in the spirit and anticipation of the North American Free Trade Agreement (NAFTA), is intended to improve economic development and cultural exchange and understanding between the U.S. and Mexico. This agreement allows the SDCCD to enter into contract education to add the latest technology to Mexico's training programs, and conduct exchange compacts with any of the 200 Centros de Capacitacion Technologica Industrial (CECATIs) vocational training centers located throughout the republic of Mexico. The first project completed under this agreement, the Educators Exchange Program (EEP), is the subject of this report.

International economic competitiveness in both the developing and developed nations continues to emphasize the development of high performance workplaces. According to some analysts, community colleges will face greater challenges as nations move away from policies shaped by political philosophies and toward policies shaped by economic forces. Recent changes in the world community have seen the rise in economic powers such as Japan, South Korea, Singapore, Taiwan, Thailand, and Hong Kong. In addition, the economic impact of rapidly industrializing nations in our hemisphere and on our borders, such as Mexico and Brazil, will provide economic challenges and opportunities (Terrey, 1992).

Many national leaders believe that an essential element to high performance workplaces is high performance schools and training centers.

Many national leaders believe that an essential element to high performance workplaces is high performance schools and training centers. To continue modernization and economic development, state and government officials believe that Mexican industry must keep pace with the latest developments in technology and technical training. A skilled workforce is viewed by state and national officials and by economists as an essential element to continued industrial modernization in Mexico. In a speech delivered in Tijuana by Zedillo when he was Secretary of Public Education, he emphasized that the mission and role of the CECATIs are pivotal to achieving the national goal of economic improvement and industrialization. He maintained that improvements in the ability of CECATIs to train students in technological trades will lead to better performance in training and more technologically cogent workforce in Mexico. Both the U.S. and Mexico will benefit economically from these improvements.

There are other rewards to be realized from this cooperation. According to many observers, international economic competitiveness will forge more trading

[2] *Ernesto Zedillo has since been elected President of Mexico*

alliances so that regions may capitalize on comparative advantages such as reduced labor costs, or availability of raw materials, in securing greater economies in production for distribution worldwide. These alliances will in large part rest upon not only mutual interest, but also upon cultural understanding, trust, and cooperation. This is particularly true in border regions, where greater economic integration is also accompanied by cultural integration. Fundamental to this integration is mutual respect and appreciation for culture. To the extent that barriers to understanding and respect between cultures can be eliminated, then greater economic cooperation and mutual benefit will be facilitated. This emphasis upon building and maintaining stronger cultural ties is evident in the agreement signed by Chancellor Gallego and Secretary Zedillo, and in the support given this effort by the Ford Foundation in Mexico City.

The rewards from NAFTA will be in large part because of small scale programs such as Educators Exchange Program.

This agreement represents the latest in a series of steps toward these goals and builds upon earlier efforts to improve bi-national cooperation and understanding while providing high quality, relevant training to Mexico by the SDCCD. The rewards from NAFTA will be in large part because of small scale programs such as Educators Exchange Program. Programs such as the EEP between the SDCCD and CECATIs predate the NAFTA by several years. Mutual assistance agreements between the two institutions started in the late 1970s. A brief description of some of these earlier programs is provided later in this report.

BACKGROUND

Cooperative Educational Programs with Mexico by U.S. Community Colleges

For this evaluation, a literature review of cooperative programs and agreements between educational institutions in Mexico and community colleges in the U.S. was conducted. As expected, the majority of agreements and trans-border institutional arrangements focus on educational exchange programs involving students. Many two-year colleges currently offer study-abroad programs in host countries. Often these programs are conducted over the summer months or winter recess. For example, Rend Lake College (RLC) in Ina, Illinois, created programs designed to foster more global awareness and understanding through opportunities to study abroad (Rust, 1992). Students with 2.75 grade point averages and more than 15 credit hours of instruction logged are eligible to study in Mexico and other selected countries. The RLC program serves approximately 300 students per year and covers the costs of the program through a local foundation. The program also invites foreign students to enroll at RLC.

Similar to the Educators Exchange Program here in the SDCCD, RLC's program also includes a faculty exchange component. This allows participants to work with counterparts in Mexico and other countries for two weeks and host administrators from foreign countries. The program also sends industrial technology instructors to work with and train their counterparts in selected less-developed countries. In addition, program officials are planning to include a component to allow five faculty members and an administrator to attend seminars offered at the Training and Resource Center for International Education for Community Colleges at Kalamazoo Valley Community College in Kalamazoo, Michigan.

Some programs focus on international agreements as a way to provide a global or regional perspective to existing curricula. Often this is done to "internationalize" the curricula offered in trade and commerce, business, or marketing. According to the report on the RLC program, the overall goal is to internationalize the college community beyond the curriculum. A similar, though smaller-scale, program is offered through a consortium of institutions in Illinois. This consortium of institutions also focuses on international issues through study-abroad programs with Mexico and other selected nations. Again, the stated goal of this consortium effort is to provide more of an international, global view on the college curriculum.

Some programs focus on international agreements as a way to provide a global or regional perspective to existing curricula.

Another program that focuses on providing more global perspectives to the curriculum is the American Association of Community Colleges-Kellogg Beacon Project. This program seeks to internationalize the curriculum through the development and support of an International Education Consortium involving eight Michigan community colleges. Program goals are pursued through curriculum and staff development activities, joint international activities, an electronics communications network, and publications. The program sponsored the development of 31 instructional modules written by faculty which were infused into the existing curriculum to provide an international perspective to college courses. In addition, travel and study programs and work experience programs were offered for students, faculty, and staff in several nations including Mexico.

The literature also reveals the existence of a small number of programs that involve faculty exchange programs and some limited technological exchange agreements. In addition to the RLC faculty exchange program described above, there are projects that focus on providing technical assistance and training opportunities for maquiladoras. An example of such a program is the one described by Rath (1988) and Slater (1988) at El Paso Community College in Texas. This program focuses on providing training and qualified bilingual instructors to provide technical education and training assistance to industries located along the U.S.-Mexico border. As with the EEP, this program also had to confront transportation, communication, and logistical difficulties in implementation. Their report is instructive for structuring international programs and avoiding some common pitfalls in implementation.

There have been programs that have had improved bi-lateral relations as their major goal in the context of providing training and technical assistance. This also

was a primary goal of the EEP and past efforts involving the SDCCD and CECATIs as described later in this report. Justiz (1980) describes the efforts of seven community colleges in the U.S. to implement a program of bi-national planning and cooperation with technology institutes in Mexico. In his review, Justiz found many similarities between the Mexican Institutos Technologicos and the community and technical colleges involved in the bi-national planning efforts. These similarities included historical development of the institutions, institutional mission, and state-imposed restrictions on bi-national agreements on both sides of the border. Justiz also describes mutual benefits to be obtained from these cooperative endeavors for both the community colleges and their counterparts in Mexico. These include cost-effective strategies for providing training along the border, and regional economic development.

To encourage educational exchange programs, U.S. and Mexican officials jointly established the United States-Mexico Commission for Educational and Cultural Exchange in 1990.

In 1989, the State Chancellor's Office of the California Community Colleges conducted a study to evaluate the study-abroad programs offered for credit by California Community Colleges. Their study found that among all college districts surveyed, at least one college from each of the districts reported that they had students who studied abroad during 1988. Overall, survey respondents reported offering 94 study abroad programs in 1988 with 2,834 students participating. Of the countries chosen for study abroad, Mexico was third on the list behind Great Britain and France. In general, students were selected to participate in the programs based on units completed and a GPA above 2.0. Criteria used for faculty assignments to the program included subject matter expertise, variety of courses a faculty member was qualified to teach, demonstrated ability to adapt to changing and unpredictable circumstances, and language proficiency.

To encourage educational exchange programs, U.S. and Mexican officials jointly established the United States-Mexico Commission for Educational and Cultural Exchange in 1990. Since that time several projects and agreements between the nations have been implemented by education officials and agencies in California. This commission is intended to support joint educational endeavors between the two nations to improve international relations, strengthen ties, and improve commerce, trade, and international economic competitiveness. In 1991, the United States-Mexico Border Conference on Education provided additional guidance to states and institutions interested in strengthening existing exchange programs and identifying new areas for cooperation.

The participants in the October 1991 U.S.-Mexico Border Conference on Education requested that the California Postsecondary Education Commission (CPEC) survey California colleges and universities regarding exchange programs with Mexico (CPEC, 1992). In 1992, CPEC conducted a survey regarding exchange programs that California's colleges and universities operate with Mexican institutions. This review identified these four primary types of exchanges between

California colleges and universities and institutions in Mexico:

1. Student Exchange Programs
2. Faculty Exchange Programs
3. Teacher Training
4. Technology Transfer

The CPEC study found that at least 65 California colleges, universities, and community college districts that responded to the survey offered study-abroad programs for resident students. Twenty of the institutions had students currently studying in Mexico. However, far fewer institutions were involved in two-way student exchanges with Mexico, where reciprocal movement of students between the nations occurred. Of these, San Diego State University and United States International University were the only institutions in the San Diego region.

Of the institutions responding to the CPEC survey, 18 had faculty exchange programs with Mexico. Several community college districts offered these types of programs at that time. Two institutions in the San Diego area were found to offer faculty exchange programs specifically with Mexico: Grossmont College and the San Diego Community College District.

In the area of teacher training, nine public institutions had implemented teacher training programs with counterparts in Mexico. Among community college respondents to the survey, Los Angeles Valley College and San Diego City College were also involved in teacher training efforts in Mexico.

Technology transfer to Mexico was a focus of many California colleges and universities responding to the CPEC survey. For example, UC Davis has established approximately 14 agreements with Mexican institutions through the UC's "Mexus" program and University Extension. Six of the state university respondents were engaged in technology or technical assistance programs with postsecondary education institutions in Mexico. These programs include consulting, special seminars, graduate students working in rural towns or *municipios*, exchange visits, and international and systemwide computer networks such as INTERNET and PROFNET. Among community college respondents, some of the colleges in the Los Angeles Community College District provided technical assistance on curriculum design, new technologies, and teaching methods to Mexican training institutions. In the San Diego area, San Diego City College and Southwestern College both reported offering technical assistance to Mexican institutions.

CPEC reviewers also stressed the potential economic benefit to California institutions by providing training programs.

The CPEC study found that technology transfer was facilitated by communication links between the cooperating institutions. For the UC, the communications and delivery systems included national resource centers for the U.S. Department of Energy, FAX links to the Education Abroad Programs, INTERNET, and on- and off-campus internships. The community college respondents relied

primarily on the Central California Consortium, interactive television, audio, video, and student newspaper exchanges, on- and off-campus training, industry internships, and satellite linkages.

In their review, the CPEC researchers identified common barriers and stimuli to the implementation of exchange programs. The stimuli cited most frequently as encouraging participation in exchange programs were interest by faculty members and administrators, proximity to the border, border agreements, and bi-national research efforts. Barriers to involvement were most often fiscal constraints. In a few cases, programs were inhibited by a lack of leadership in promoting these types of exchanges, limited coordination and initiative, and lack of personnel.

To encourage more educational exchange programs, the CPEC reviewers made the following recommendations. The first was to allow Mexican nationals to attend public colleges and universities while paying resident tuition. Such a program was found in Texas, where, with certain restrictions, Mexican nationals are allowed to attend general academic teaching institutions at in-state rates if they prove financial need.

CPEC reviewers also stressed the potential economic benefit to California institutions by providing training programs, possibly through expanded contract education opportunities. They suggested that institutions make greater efforts to develop contractual relations with clients in Mexico.

Literature Review Summary

The literature review suggested that the EEP's goals were in many ways similar to the goals for other agreements forged between community colleges in the U.S. and counterparts in Mexico. As with other programs summarized above, the EEP has the goals of economic improvement, expanded training opportunities, greater cultural understanding, and trans-national cooperation. Also, many of the faculty exchange programs reviewed showed similar program objectives, such as greater cultural understanding, internationalizing the curriculum, language improvement, knowledge of alternative educational delivery systems. These features and goals are found in practically all of the programs that were reviewed for this evaluation.

The EEP has the goals of economic improvement, expanded training opportunities, greater cultural understanding, and trans-national cooperation.

However, the EEP had some features unique to itself. It was focused on a careful assessment of regional training needs of the local CECATIs in Guanajuato. The program sent instructors from the SDCCD to the CECATI training sites and private industries in Guanajuato to make the training more appropriate and the learning more transferable. The goal of this instructor-in-residence approach was to make the SDCCD faculty more familiar with the conditions and challenges faced by their Mexican colleagues, and to make the instruction more directly relevant to the students. These students would then be better able to train others in the use of the existing equipment and facilities at their local CECATIs. This contextually-based training approach was found to be of greater value and was shown by the evaluation

questionnaire to be highly relevant to the instructors receiving training. Through the classroom approach, many more instructors could be trained on the uses of more modern equipment. At the same time, instructors returning to their local CECATIs could better inform administrators and CECATI officials of the latest advances in these technologies and request the latest equipment and software. This would serve to help keep the CECATIs more current and to better meet the needs of an expanding and increasingly competitive industrial and economic market economy. These features distinguish the EEP from the other programs reviewed.

SDCCD AND CECATI TRANS-NATIONAL COOPERATION: 1978-1994

The EEP pact between the SDCCD and the CECATIs to provide advanced technical training to teachers is the most recent in a series of agreements and actions, both formal and informal, that have occurred since approximately 1978. This section chronicles much of the history and background of the SDCCD-CECATI relationship. An understanding of this 16-year relationship provides an informative context for this evaluation and shows the progress made since the initial agreements were forged in 1978-1979.

The first contacts and subsequent agreements between the two institutions might best be viewed as a process of getting acquainted.

In September 1978, the SDCCD Board of Trustees was presented with reports about a series of meetings that had taken place between SDCCD administrators in vocational education and adult education and CECATI Number 6 (Tijuana) administrators. These meetings were conducted to identify possible avenues of assistance to the CECATI from the SDCCD. In June of that year, SDCCD administrators from the adult education and vocational education divisions visited the CECATI site in Tijuana. It was here that SDCCD officials established initial contact with the CECATI officials and learned some of the challenges faced by these centers both in training and maintaining pace with technological change. Following this meeting, requests for assistance to the CECATI in Tijuana were forwarded by SDCCD administrators to the SDCCD governing board. These initial requests focused primarily on donated equipment, textbooks, instructional materials, surplus supplies, course outlines, curriculum materials, and information regarding the requirements and procedures for obtaining a vocational teaching credential in California at that time.

Opportunities for CECATI officials and faculty to visit vocational classrooms in the SDCCD were also discussed and approved by the governing board and SDCCD staff. At that time, CECATI officials were interested in visiting classes where training in electronics, radio communication, welding, carpentry, and ESL was provided. In addition to classroom and site visitations, the agreement also included sharing with CECATI officials documents pertaining to the administrative structure of the SDCCD, with particular focus on the instructional delivery system in vocational education. The CECATI staff was given information on how curriculum is developed and the role of vocational education advisory committees in shaping the training offered by the SDCCD.

In retrospect, the first contacts and subsequent agreements between the two institutions might best be viewed as a process of getting acquainted with different systems and different perspectives on training from both sides. A review of the documents and a collection of memos and correspondence from that time suggest that much was learned from these initial contacts, particularly about the different instructional delivery systems. These first meetings led to a series of contacts of growing complexity and involvement. On a national level, Mexico renewed a rapid process of modernization that continued throughout the 1980s fueled by discoveries of petroleum-rich deposits in the southeastern part of the nation. Throughout this period, the national leadership viewed technical training as an important element in this modernization. At the same time, the SDCCD was interested in providing training opportunities and regional collaboration to add to its offerings of training and educational services. International opportunities for training and contract education combined with a general commitment to international good will provided a strong incentive for SDCCD participation in this project.

The CECATI/SDCCD Vocational Teacher Intern Program (VTIP)

Some of the origins of the current Ford project can be found in a 1979 joint project between the SDCCD and CECATI Number 6 in Tijuana. Then, as with the recent Ford-sponsored project, the primary area of cooperation with the CECATI was in teacher training. Following a July 1979 tour of the Tijuana CECATI site by the SDCCD Chancellor and staff, SDCCD staff wrote a proposal in cooperation with the local CECATI officials to offer a Vocational Teacher Intern Program (VTIP). In this cooperative program, six CECATI faculty worked under the direction of some of the SDCCD's vocational education instructors during the fall 1979 semester. The purpose of this training was for CECATI instructors to learn instructional techniques and to begin an English as a Second Language (ESL) course for non-English speaking CECATI instructors. This proposal was approved by the SDCCD Board of Trustees, and the VTIP was implemented during the fall 1979 semester.

This initial program paved the way for a subsequent agreement built upon the same premise of teacher training, experiential education, and cultural immersion.

During the program, the SDCCD provided training to selected instructors from CECATI #6 in Tijuana in their technical specialty. A typical day for these teacher interns was divided into two four-hour time blocks. During the first half of the semester, the visiting interns participated in various advanced projects under the direction of the instructor for the first four hours of the day. The purpose of this was to acquaint the interns with the teaching and learning process as it occurred in SDCCD vocational programs. In the second half of the semester, interns spent those four hours as teacher assistants, working directly with their assigned instructor and sharing in teaching duties in the classroom.

During the second four-hour block of each instructional day the interns were assigned to a position in local industry directly related to the training they were receiving. Here, the interns were given the opportunity to experience firsthand the

application of some of the latest technologies in their technical specialty and for which they would eventually be preparing students. This combination of classroom and experiential education was intended to provide a useful context for training and building bridges of understanding.

In addition to their assignment with a vocational education instructor, each intern was assigned to a vocational education coordinator, who provided assistance and made arrangements during their stay for site visits, transportation, and attendance at various events in the SDCCD and elsewhere. All graduates of the VTIP attended a graduation ceremony and received certificates of completion. Although there was no formal evaluation of the program at that time, a review of the documents and correspondence between Mexican officials and the SDCCD governing board from that period suggests that the visiting interns benefited from their participation and that the program was well received in the SDCCD and by CECATI counterparts. It also appears that this initial program paved the way for a subsequent agreement built upon the same premise of teacher training, experiential education, and cultural immersion. This program was of longer duration and of greater complexity than the VTIP.

The International Instructor Intern Program in Vocational Subjects (1986)

In 1986, the SDCCD offered the International Instructor Intern Program in Vocational Subjects (IIIPVS) in conjunction with the CECATI. This program provided training to selected CECATI instructors through a combination of instructional, experiential, on-the-job, and educational activities. During the six months of this program, interns were immersed in vocational education, training techniques, industrial applications, and cultural experiences. This was done through seminars, internships in industry, site visits, attendance at local cultural and educational events, and daily instruction.

The IIIPVS program greatly resembled the VTIP described earlier, but with a broader scope and longer length. The program lasted half a year, and participants were expected to participate in a wider variety of activities, such as seminars on instructional technology and techniques. In addition, interns were expected to produce papers describing their experiences and any improvements in their teaching realized from participating in the program. In addition to greater program length and more varied activities, the IIIPVS program also involved two neighboring community college districts.

During the six months of this program, interns were immersed in vocational education, training techniques, industrial applications, and cultural experiences.

The IIIPVS program consisted of three primary components. The first of these was an instructional practicum in a vocational education classroom or lab of the SDCCD. The practicums were offered for four hours each day for 14 weeks. Each of the interns was under the direct guidance and supervision of a SDCCD vocational instructor. The practicums included practice teaching through the use of interpreters in both classroom and laboratory settings. As part of

their participation in the program, the interns were required to prepare a final paper describing their experiences and outcomes from their participation in the daily practicums.

The second component emphasized on-the-job industrial training (OJT) in an industry closely related to the instructional specialty of the intern. This experiential component combined with teaching practicums was similar to the format of the VTIP six years earlier. The OJT component ran for four hours per day for eight weeks. Each intern was directed in his activities by an assigned supervisor at the participating firm or business. Each intern was responsible for preparation of a final paper describing his experiences and the cognitive and behavioral changes he experienced as a result of participating in the OJT. Final papers written in both English and Spanish were presented to the local CECATI Director and the SDCCD Director of Vocational Education.

The third component of the IIIPVS included various educational and instructional activities designed to improve participants' teaching, training, and program evaluation abilities. Special seminars were offered in a variety of areas such as teaching techniques, using computers in vocational education, competency-based vocational education (CBVE), and program evaluation methods. Interns were also engaged in evaluating the final papers submitted by their peers and assisting in preparing the status report of the overall program for review by CECATI and SDCCD leadership. These special seminars and activities were scheduled over a two-week time period and were generally four hours in length. At the conclusion of the seminars and submissions of final papers, a special recognition and awards ceremony was held in Tijuana, B.C., Mexico.

Other features of the program facilitated its success. Logistical and local arrangements for everything from accommodations to OJT internships were coordinated. As in the VTIP, each CECATI intern was assigned to a SDCCD vocational education coordinator, who assisted in making local arrangements and providing help when needed. SDCCD administrators worked to secure the necessary documentation for living and studying in the U.S., and worked with Mexican immigration officials to ease passage of any specialized tools or equipment students needed to take with them into either Mexico or the U.S.

Prior Exchange Programs: Summary

Since 1978, and prior to this recent Ford-sponsored effort, the SDCCD and CECATI have developed a long tradition of partnership and cooperation through a series of exchanges of increasing scope and complexity. They have forged strong ties from the early programs where used equipment and tools were donated to Mexico. Information exchanges generally brought CECATI instructors to facilities in the U.S. for teacher and experiential training. And, now, this latest program sent SDCCD faculty to train CECATI insturctors in Mexico.

There have been other joint projects and agreements for future programs. Recently, the SDCCD had developed agreements and provided assistance to other

technical institutes and universities in Mexico. For example, in the summer of 1993, Mexican professors came to San Diego to learn advanced manufacturing technology. One year ago, the SDCCD entered into an agreement with a university in Tijuana to begin a joint program with Mesa College's architecture department. This will begin a series of exchange projects, including students designing and constructing low-income housing. The SDCCD is also cooperating with Mexico's CONALEP institutions in designing and providing advanced technical training. CONALEP includes approximately 200 colleges and institutions that provide advanced and generally longer training programs than the CECATI programs do.

In the summer of 1993, the SDCCD Chancellor and Vice Chancellor met with CECATI and other Mexican officials in Mexicali, B.C., to talk about future areas of cooperation and partnership. At this meeting, CECATI officials from the state of Guanajuato discussed the idea of sending SDCCD instructors to selected CECATI sites in the state of Guanajuato to provide training to local CECATI vocational instructors. Following a series of meetings and public discussions with the SDCCD governing board, a tentative plan for the project was developed. Mexican officials invited selected SDCCD officials to tour CECATI training sites in Guanajuato, where the SDCCD faculty would be working. During the January 1994 visit, arrangements were made for four instructors to conduct a four-week training program in June 1994. At the same time, SDCCD and CECATI officials developed a proposal to be submitted to the Ford Foundation in Mexico City, which ultimately approved fur ding of the proposal.

To help support the Educators Exchange Program, the SDCCD applied for and received a grant from the Ford Foundation.

The Educators Exchange Program-1994

The most recent program—The Educators Exchange Program (EEP)—is the focus of this evaluation report. This program builds upon the knowledge and experience gained from more than 16 years of cooperation, and includes important dimensions not found in the previous programs. A key element to this program was the selection of four highly recognized instructors in various vocational and technical training areas to provide training to CECATI teachers at the CECATI training facilities in the state of Guanajuato, Mexico. To help support this program, the SDCCD applied for and received a grant from the Ford Foundation in the spring of 1993 to provide a teacher exchange program with the Guanajuato CECATIs. During the planning stages of the grant application, Chancellor Gallego and other district leaders and faculty held discussions with national and state CECATI leaders, as well as with local CECATI directors to identify strategies and local training needs and facilities. They recommended that the focus of the Ford grant should be to support the training of teachers in Mexico in the latest technology and training techniques.

Leadership and follow-up in this incipient and unique exchange program were critical to the success of the grant application. Chancellor Gallego worked closely with CECATI leaders and with Norm Collins of the Ford Foundation of Mexico City in making operational the details and structure of this new program as developed by

SDCCD administrators and faculty and CECATI state and national officials.

A needs assessment was designed to match the perceived training needs, facilities, and equipment in the Guanajuato CECATIs with the necessary SDCCD instructional resources. The needs assessment identified a need for training in four subject areas: Introduction to Air Brake Systems, Ceramics, Office Systems, and Introduction to Computer Numeric Control and CAD/CAM.

Once these local needs were identified, instructors from four technical areas were invited to participate in the four-week program in Mexico. These instructors were selected primarily because of their expertise, prominence in the field of study, and interest in living and teaching in Mexico. They had long demonstrated a combination of instructional talent, technological expertise, and interest in cultural immersion. The proposal to the Ford Foundation in Mexico City included information about the proposed project, a brief chronology of recent CECATI and SDCCD partnerships, and background information and demographics of both institutions. With the support of Ford's representative in Mexico City, and with broad participation from educators and officials from both countries, a proposal was sent to the Ford Foundation in Mexico City and was subsequently approved.

Under the Ford grant, the four selected SDCCD vocational instructors went to Guanajuato, Mexico, in the summer of 1994 to train CECATI instructors in their respective technical areas. The approved grant focused on preparing CECATI professors to teach current technology to business and industry, including computerized machine shop, environmental safety, hazardous waste control and quality improvement measures. The four instructors selected were Mr. Jack Bollinger from City College, who taught Computer Numeric Control and Computer-Aided Design; Dr. John Conrad from Mesa College, Ceramics Technology; Mr. Jim Lewis from Miramar College, Air Brake Systems; and Ms. Nadine Reid from the Educational Cultural Complex, Office Systems. Because all courses were taught during a four-week session, instructors had to modify the course material to fit the instruction into this abbreviated time period.

The approved grant focused on preparing CECATI professors to teach current technology to business and industry.

Training did not focus solely on new, emerging technical areas. The Ford grant also allowed CECATI ceramics teachers to learn current technology which could be applied to the centuries-old methods of manufacturing ceramics in Dolores Hidalgo, where the ceramics industry has long been a mainstay of the local economy and tradition. For example, Mesa College professor John Conrad taught Mexican ceramics professors, manufacturers, and shop owners how to improve the quality, strength, and durability of their products while reducing lead content. This training aimed to preserve Dolores Hidalgo's ancient tradition of ceramics manufacturing by making the product safer, more durable, and of improved quality and safety for international trade.

Another important factor in selecting faculty was their flexibility and patience. This new program contained many unforeseen circumstances and challenges. As this evaluation reveals, faculty and administrators who worked on this project demonstrated a capacity to meet challenges brought by a new program in a foreign nation. Local CECATI administrators also demonstrated initiative and versatility. The program's faculty and local leaders had to demonstrate a combination of instructional expertise, technical knowledge, cultural openness, and a great deal of flexibility and initiative almost on a daily basis. Although some of these challenges were problematic, there were positive side effects. Evaluation suggests that a new cultural understanding of the intricacies, logistics and related issues in trans-national exchange programs was gained by participants on both sides of the border. This is an important outcome, and was a primary goal of the Ford grant.

This teacher exchange program represented a significant first step for both institutions. There were many challenges, both known and unanticipated, in this incipient program. Lessons learned from this first program can be applied to future programs. Thus, the outcomes and process of this first program are essential knowledge to the success of future international pacts.

The outcomes and process of this first program are essential knowledge to the success of future international pacts.

The purpose of this evaluation is to document and report these outcomes for future joint efforts in training and technical assistance between the U.S. and Mexico. In the spirit of NAFTA and greater economic integration to meet world demands for competitiveness, the technical assistance pacts between these two large institutions might be viewed as a model for other institutions to follow. This evaluation is intended to inform and guide our efforts toward improving future joint programs. Therefore, this evaluation takes a formative approach and philosophy. Much of what we learn from this initial endeavor can be applied to future exchanges.

Evaluation Approach

After a review of program materials and the grant proposal to the Ford Foundation, two evaluation instruments were designed (see Appendices A and B). One was a student questionnaire designed for completion in class (Appendix A). The other was a survey asking the four instructors to describe in detail their experiences and recommendations for future implementation of this program (Appendix B). In addition, we were interested in learning if a major conceptual goal of the grant had been partially attained, that of greater cultural understanding and cross-cultural awareness for both the SDCCD instructors and the CECATI instructors they were training.

The in-class survey was designed and, after careful review by all the pact's parties, was translated into Spanish. Although obviously a necessary part of the process, the translation resulted in an inadvertent change in the original thrust of some questions. This subtle change in meaning required some explanation and mid-

course correction when administered in Mexico to maintain fidelity with the original intent and framing of the evaluation questions. The questionnaire was administered to students during the final week of classes at each of the four sites in the state of Guanajuato: two in Celaya, one in Leon, and the fourth in the town of Dolores Hidalgo. Questionnaires were also given to the four SDCCD vocational instructors to complete for inclusion in this evaluation report.

Student Evaluation

The goals of the Ford grant and local evaluation needs for both CECATI officials and SDCCD administrators and faculty guided the development of the evaluation instrument. The in-class survey sought to measure overall course quality, duration, and language and cultural issues. Some limited demographic data were also collected. In all, 61 students completed evaluation instruments, which were coded and entered into a database by the SDCCD Research and Planning Office, and analyzed using the Statistical Package for the Social Sciences (SPSS).

The evaluation instrument focused on student perceptions of the course in terms of training objectives, knowledge gained, and other data. Little information was directly obtained about actual competencies learned in the content area of interest, unless done by an instructor on a voluntary basis. For example, Professor Lewis greatly assisted in this effort by conducting pre- and post-course testing on the content of the course to measure gains made in the desired competencies. This use of pre/post testing was an excellent example of adaptation and insight into the goals of the program. It also provided concrete evidence of the success of the program. His analysis suggested tremendous improvements in content knowledge. T-TEST results suggest very high gains from pre-course to post-course content knowledge ($p<.0001$). This type of information, while not available for the other courses, strongly suggests that the exchange program is achieving a primary goal of improved knowledge in current technology.

Instructor Evaluation

Instructors were also given a brief questionnaire to complete (Appendix B). Questions were developed by the SDCCD Research and Planning Office in conjunction with Chancellor Gallego and Vice Chancellor Brooks. The instructor evaluation instrument focused on course duration; ability to complete training objectives; program improvement; cultural adaptation; pre- and post-visit Spanish speaking ability; knowledge of training delivery systems in Mexico; living arrangements; extracurricular activities such as visiting with local families, cultural events and attractions; and overall evaluation of the program for future development. This evaluation, as with the student evaluation, was primarily formative. That is, the information was sought primarily to improve future exchanges and anticipate problems.

Demographics of Students

As stated above, some limited demographic information was obtained about the students. These questions focused on gender, age, occupation, state of residence,

educational history and attainment, and family background. These questions were also included to provide requested information by the funder regarding the backgrounds and characteristics of the students served.

Evaluation Results: Student Demographics

Gender, Age, and Disability Status

Students in the class were CECATI instructors. They came to the program with extensive backgrounds and many years of instructional and industrial experience. The average age of the students was 34 (standard deviation=8.6), with a range from 20 to 60 years of age.

Approximately two-thirds of the trainees were male. This differed by course. In Office Systems, 17 of the 19 respondents were female (90%), while in the Air Brake Systems course all respondents were male.

No student indicated any sort of physical or learning disability. This was confirmed by the instructors and an on-site visit by the evaluator. Thus, no special accommodations were observed or needed for this population.

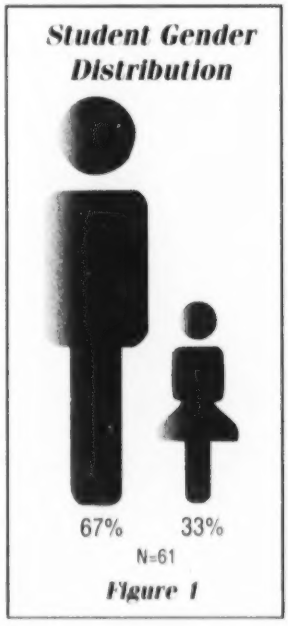


Figure 1

Purpose for Enrolling

Consistent with the goals of the program, respondents generally cited the desire to improve in their ability to perform at their present job as the primary reason for enrolling, or in some cases, competing for openings in the course (such as the Ceramics course where students applied for entry). Only one student indicated a desire to change careers, while 20 students said they anticipated that the nature and demands of their occupation will change because of emerging technology. They felt a need to keep abreast of these changes. This suggests a highly motivated group of students with high expectations for the course.

Language Proficiency Pre- and Post-Course

A primary goal of the Ford grant was to improve student understanding of technical terms and overall proficiency in English. Students were asked to self-report their English language skills before and after the course. The improvements reported were impressive. Overall, the respondents noted that their English language skills had improved substantially, even in courses where translation was often or sometimes not available (such as the Ceramics and Air Brake Systems courses). A paired-samples T-Test was conducted to test the statistical significance of the mean difference in pre- and post-course proficiency. The results showed significant differences at the .0001 level as reported in Figure 2.

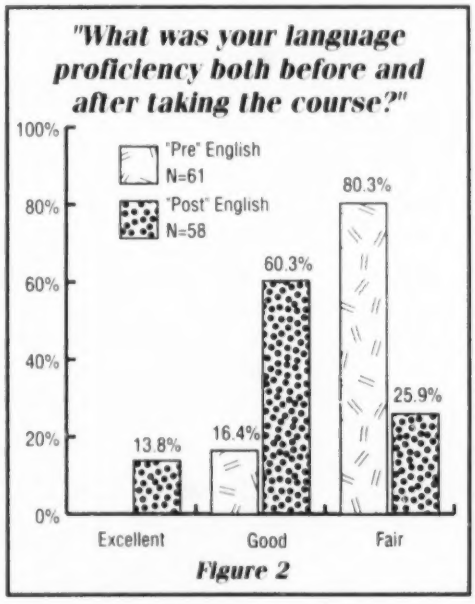


Figure 2

While approximately 80% of the students indicated "fair" pre-course English proficiency, only 26% rated their

English as "fair" by the end of the course. No students indicated "excellent" pre-course language skills, but by the end of the course approximately 14% self-reported that their skills were now excellent. As mentioned earlier, these "pre" and "post" differences were highly significant statistically as indicated in Table 1.

Table 1
English Ability
T-Test for Paired Samples

	Mean	Standard Deviation	SE of Mean
Before/After Course			
(Number of pairs=58 Correlation=.598 2-tail Sig=.000)			
"Pre" English: Before Course	*1.2241*	*.497*	*.065*
"Post" English: After Course	*1.8793*	*.623*	*.082*
Paired Differences			
(t-Value=9.69 df=57 2-tail Sig=.000)	*.6552*	*.515*	*.068*
95% CI (.520, .791)			

MEXICAN STATE OF ORIGIN

Participants were asked their state of origin in Mexico. The vast majority of students came from the state of Guanajuato (approximately 95%). A few students, however, were so interested in the Air Brake Systems course that they commuted from as far as Guadalajara (a distance of several hundred miles) to attend classes and went home on weekends.

HIGHEST DEGREE OR CERTIFICATE EARNED

Students generally had high levels of education when compared with average education levels in the republic of Mexico (UNESCO, 1991). This was expected because these students were instructors themselves, often with many years of training and industrial experience.

Approximately two-thirds had completed at least "preparatoria" level (the national average is slightly more than 21% according to UNESCO), while just over 20% had completed some sort of technical training and achieved some sort of certification as compared with approximately 14% in the general population of Mexico.

Approximately 7% had completed a university degree in Mexico. In summary, the group of learners was well prepared and brought with them several years of instructional experience and content area knowledge.

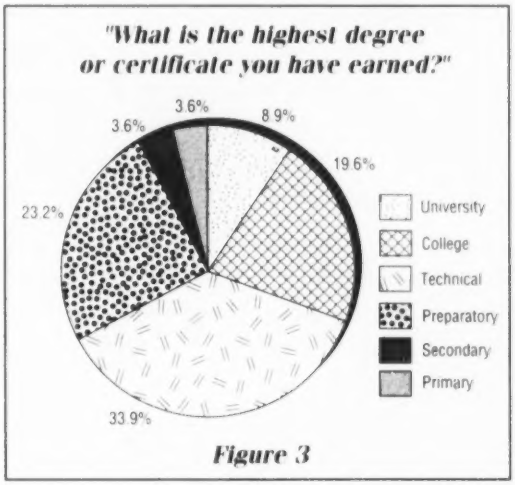


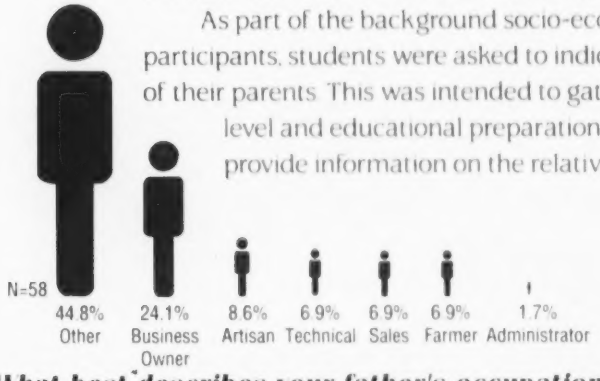
Figure 3

Years of Education Completed

Students indicated completing an average of approximately 12.7 years of education, with a range of five years to a high of 23. Despite the wide range of years of education completed, measures of central tendency were stable for this variable. The median and modal values were both 13 years with a standard deviation of 3.7.

Parental Occupation: Father

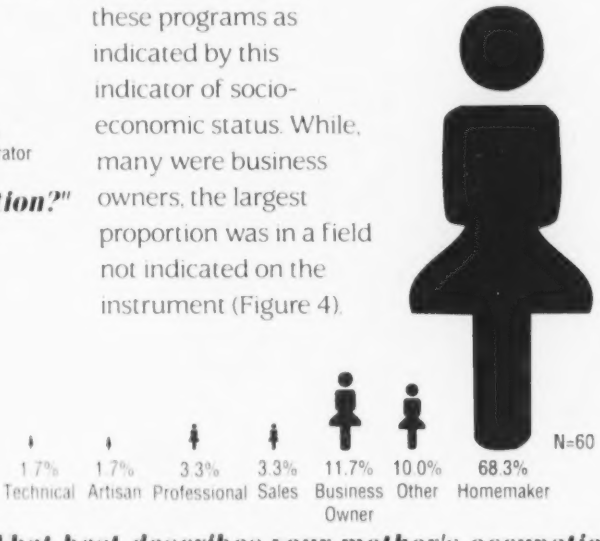
As part of the background socio-economic data of the participants, students were asked to indicate the occupational status of their parents. This was intended to gather data about the economic level and educational preparation of the students, as well as provide information on the relative mobility of students in these programs as indicated by this indicator of socio-economic status. While, many were business owners, the largest proportion was in a field not indicated on the instrument (Figure 4).



"What best describes your father's occupation?"
Figure 4

Parental Occupation: Mother

A similar question was asked for the occupational status of the mother. As expected, the largest group was homemakers (Figure 5).



"What best describes your mother's occupation?"
Figure 5

Evaluation Results: Students' Perceptions

Students were asked to indicate their level of agreement or provide a qualitative judgment on various aspects of the course. Students were instructed verbally and on the evaluation instrument to be as honest and as critical as necessary. This formative evaluation was aimed at program improvement and students were reminded that their honesty was important and that their answers would be confidential. This was reiterated by the CECATI officials who assisted the evaluator in the classroom evaluation process, and the SDCCD instructors who at all times indicated a genuine desire for constructive comments for future projects. To help assure the students of this promise of confidentiality, no names or identifying information were gathered.

This section summarizes those responses using a brief narrative and figures to represent the responses. All figures and percentages reported are based on a sample size of 61 respondents who completed surveys during the week of the on-site evaluation. For certain questions, the original sample size of 61 dropped

somewhat because of incomplete, illegible, or non-responses to questions. This is indicated in the legend accompanying the graphs where the data are plotted. In the graphs, the courses are coded as follows:

Class #1 ..... Air Brake Systems, taught in Leon, Gto.

Class #2 ..... Ceramics, taught in Dolores Hidalgo, Gto.

Class #3 ..... Introduction to Computer Numeric Control (CAD/CAM), taught in Celaya, Gto.

Class #4 ..... Office Systems, taught in Celaya, Gto.

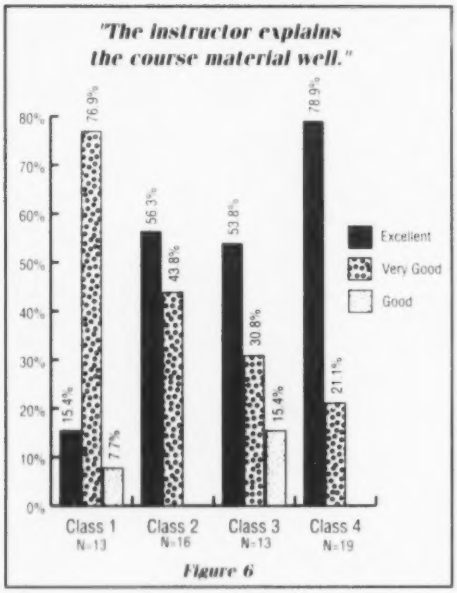


Figure 6

Explained Course Material

The vast majority of students indicated that the instructor explained course material very well or excellently. Overall, more than 95% of the respondents indicated high satisfaction with this aspect of the course (Figure 6). Responses to this question appeared to be influenced by the availability of a translator for the course. In those courses that had a translator generally available, such as the Office Systems (#4) and Computer Numeric Control (#3) courses, responses were generally more favorable, although the other students also rated instructor explanations as very good to excellent.

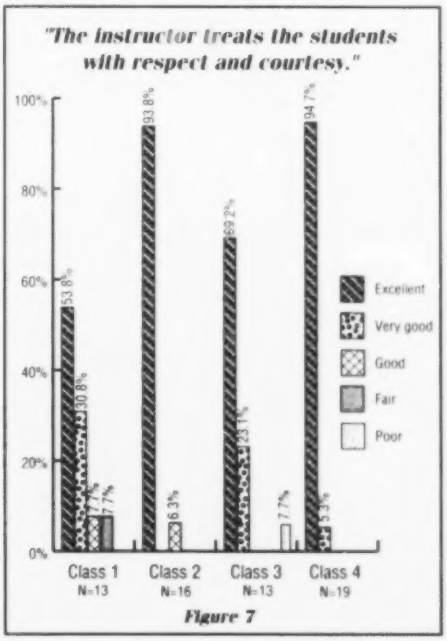


Figure 7

Treated Students with Respect

The overwhelming majority felt they were treated with respect. Almost 100% indicated a "good" to "excellent" rating of this facet of the course and their interaction with the instructor (Figure 7). Fostering cultural awareness and respect was a major focus of the Ford grant and the EEP program. The outcomes were impressively favorable.

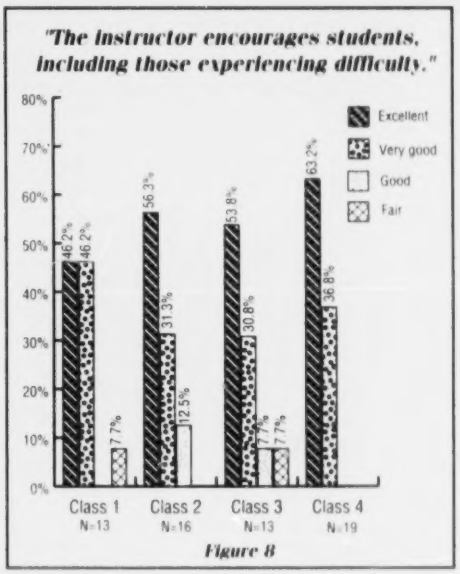


Figure 8

Motivated Students to Learn

Students found the courses to be highly motivating and the instructional format interesting and engaging. Overall, approximately 93% indicated high levels of satisfaction with the motivational attributes of the course (Figure 8).

Clarity of Course Objectives

More than half of the respondents (54%) indicated that the instructor did an excellent job of detailing course objectives from the outset of instruction (Figure 9). Taken together across all four courses, almost 90% of the respondents rated this aspect as "very good." These responses were moderated in certain instances by the availability of equipment and instructional materials, particularly in the cases of the Air Brake, Computer Aided Drawing, and Ceramics courses, where materials and equipment for the practical aspects of the course were sometimes unavailable, their arrival delayed by logistical and communications problems. This was also discussed by the faculty in their evaluation of the program.

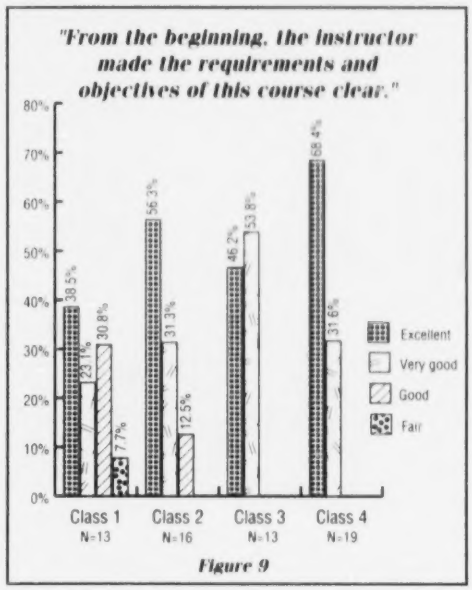


Figure 9

Organization of Course to Facilitate Learning

Respondents indicated that the courses were generally well organized (Figure 10). When analyzed by course, responses here appear to be influenced by the overall availability of equipment essential to teaching the course. As indicated earlier, there were some logistical problems in obtaining necessary equipment for instruction for at least two of the courses. This was particularly true for the Air Brake Systems course, where equipment was essential to demonstrate concepts taught in lecture.

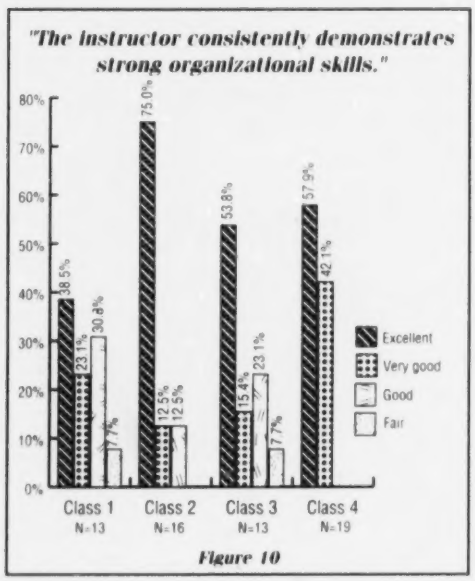


Figure 10

Interest and Enthusiasm on the Part of the Instructor

Students gave exceptionally high ratings to to the interest and enthusiasm of their instructors. No student indicated below a "good" response, with almost 80% indicating that the instructor was excellent in this regard (Figure 11).

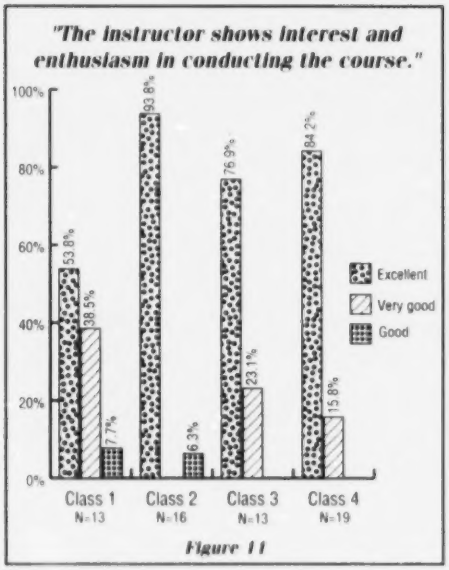


Figure 11

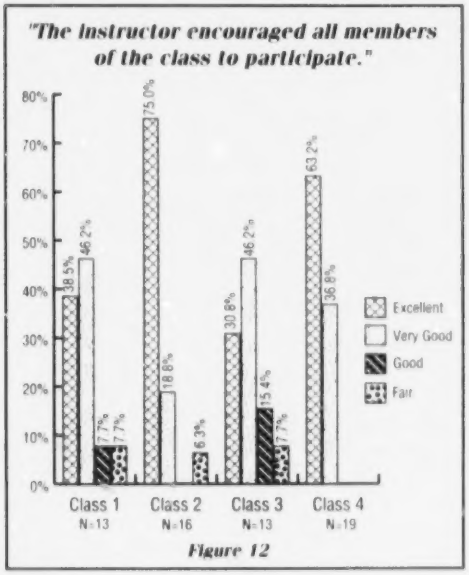


Figure 12

The Instructor Encouraged Participation

Approximately 90% of the respondents said instructors were "very good" to "excellent" at encouraging student participation (Figure 12). Only six students indicated that participation was either "good" or "fair."

The Instructor Provided Clear and Complete Answers to Questions

Despite language barriers, students were very pleased with this aspect of the course. Approximately 95% indicated a "very good" or "excellent" rating to the completeness of instructor's responses to questions (Figure 13). This, again, is a testament both to the flexibility and ability of the instructors involved, and to the patience, persistence, and motivation of the students.

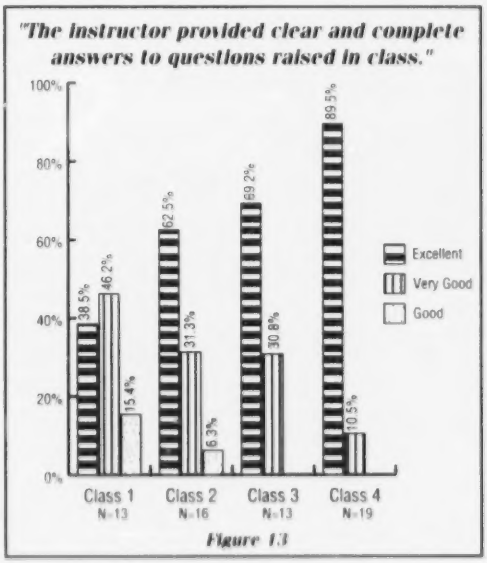


Figure 13

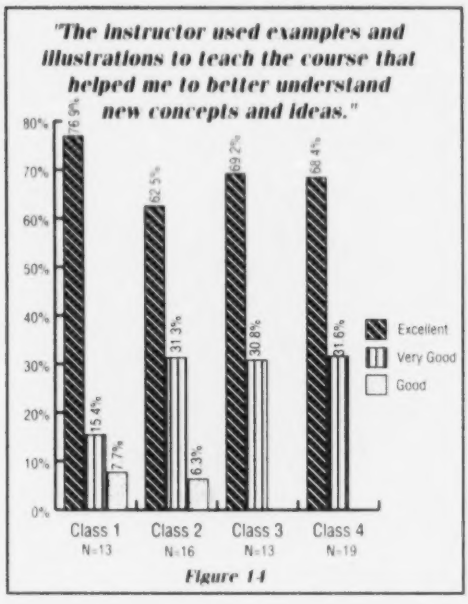


Figure 14

Use of Examples in Class

Almost 70% of the respondents indicated that the instructor did an "excellent" job using examples to clarify concepts taught in class (Figure 14). No student gave a poor rating to this question.

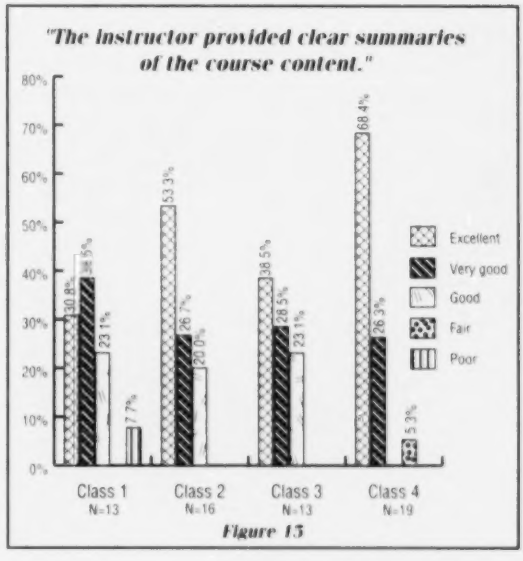


Figure 15

Provided Clear Summaries of Course Materials

One-half of the students indicated that the instructor did an excellent job summarizing the course material. Overall, 97% gave a "good" to "excellent" rating of the instructor's ability in this area (Figure 15). Only two students indicated that the instructor was "fair" or "poor" in this regard.

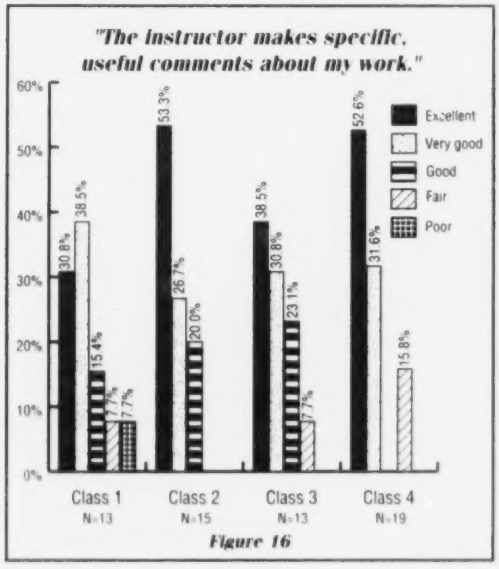


Figure 16

Relevant and Specific Feedback

Slightly more than 75% of all respondents indicated a "very good" to "excellent" rating on the specificity and clarity of the feedback received from the instructor (Figure 16). Responses appeared to vary according to the general availability of translators.

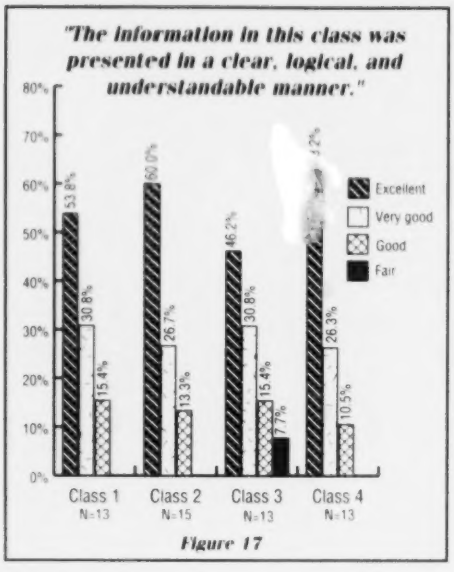


Figure 17

Clarity of Course Material Presented

Overall, students were impressed with the clarity of course material presented by the instructors (Figure 17). As with other responses dealing with understanding of concepts or feedback, the availability of a good translator appeared to moderate responses to this question.

Acquisition of Useful Concepts, Attitudes, and Ideas

Approximately 82% gave the course high marks for providing useful knowledge or skills, with 45% indicating that the course was "excellent" in this regard (Figure 18). Eleven students rated the course as only "good" or "fair" in the usefulness of the information presented. Thus, the courses appeared to generally meet the goals of relevancy and value from the student's point of view, a key goal of the Educators Exchange Program.

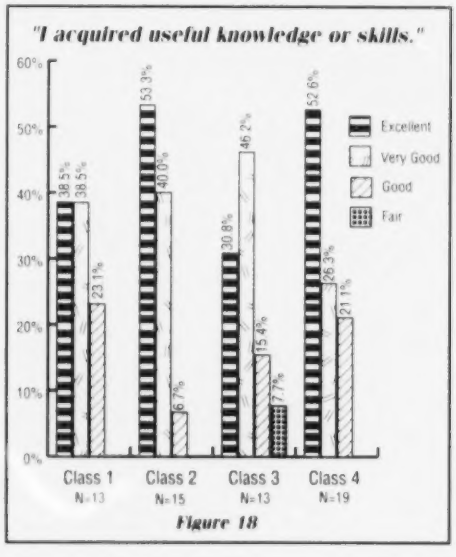


Figure 18

Course Completed All Stated Objectives

Almost 72% appeared to agree strongly that the course met stated objectives. Seventeen students, or about 25%, felt the course was "good" to "poor" in this regard. This may be because of the compressed nature of the course and amount of material to be covered in a four-week period. One of the most frequently cited recommendations of the students was to lengthen the course, or decrease the amount of material to be covered.

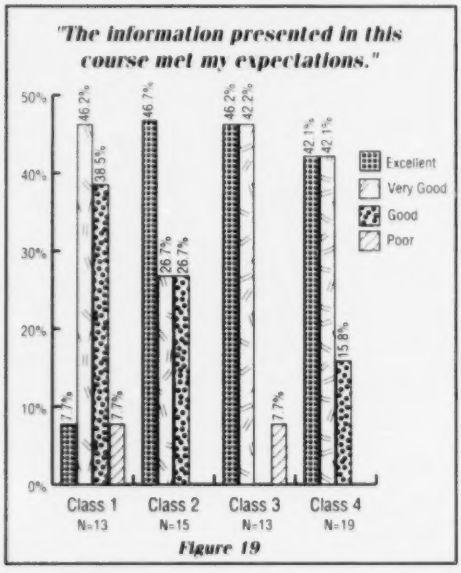


Figure 19

Course Met Expectations

Slightly more than 75% gave the courses a "very good" to "excellent" rating with regard to meeting expectations; approximately 20% gave a "good" to "poor" rating (Figure 19). Course duration and equipment availability were cited by some students as sources of some frustration, but as the graph shows, the clear majority gave the classes high marks overall.

Printed Materials Were Useful

Students were very pleased with the printed materials, even though most handouts and prepared materials were in English. No student gave this aspect of the course a "poor" rating (Figure 20).

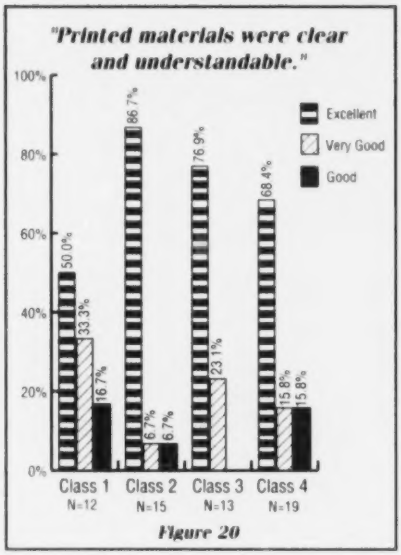


Figure 20

Usefulness of Course in Job or Profession

The value of the course to the students' occupations or professions was a key construct to be measured in the evaluation. This goal appears to have been reached. Thirty-one of the respondents, or one-half, gave the course "excellent" marks, with the remainder indicating "very good" or "good" to this question (Figure 21).

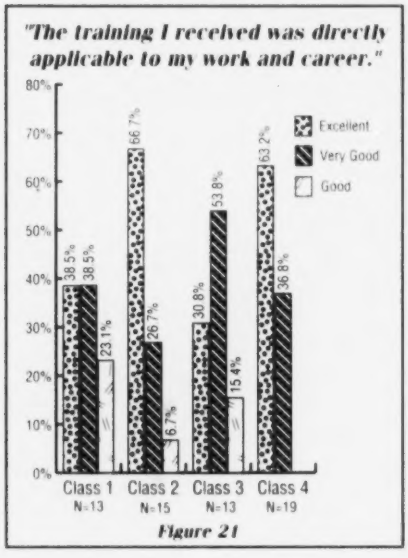


Figure 21

Language and Cultural Barriers

In general, most students did not find language a barrier to learning, but this varied with the availability of a skilled translator (Figure 22). Most students commented that learning would be greatly helped by the consistent availability of a translator.

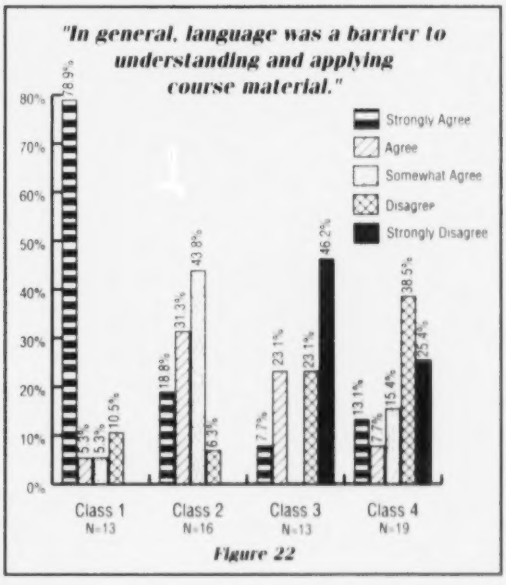


Figure 22

As with language, cultural barriers did not appear to interfere with instruction (Figure 23).

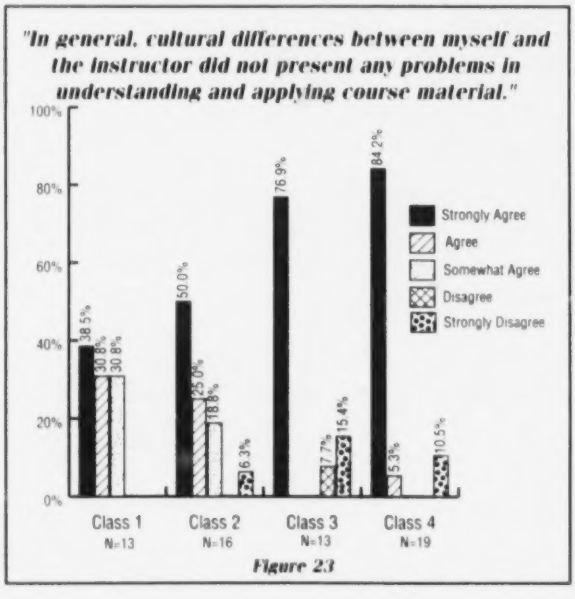


Figure 23

Necessary Equipment Available for Teaching Course

Respondents were generally less favorable in evaluating equipment availability for some of the courses (Figure 24). This was not generally the case in the Office Systems course, where most equipment was available from the first day, whereas in Air Brake Systems, equipment availability was much more of a concern to the students. This is reiterated in faculty comments in Appendix B.

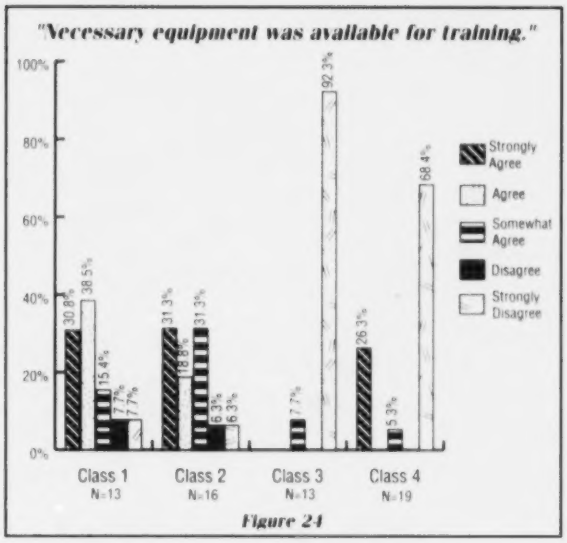


Figure 24

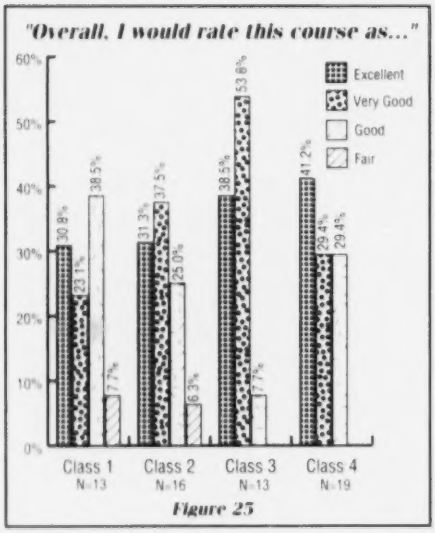


Figure 25

Overall Rating of the Course

As expected from the foregoing, students gave their course generally high marks and most indicated an interest in repeating the experience (Figure 25). Approximately 72% rated the courses as "very good" to "excellent." Only two students gave the courses a "fair" rating.

Content Knowledge: Pre- and Post-Course Test Data for Air Brake Systems

Professor Lewis gave his students pre- and post-course tests to gauge the amount of skills they acquired from the instruction. The results were impressive. The mean scores improved dramatically and the pre/post difference was highly significant as indicated by the p-value obtained by the T-Test in Table 3 ($p<.001$). Future courses may incorporate pre- and post-course testing as indicators of course effectiveness. These data provide powerful, concrete evidence of the success of this particular course. He used a rather simple, yet elegant, approach in documenting the knowledge gains made by his students despite inconsistent availability of a translator, equipment difficulties, and other logistical challenges. Results are compelling and stand as recommendations for this process to become standard in evaluating instructional and program effectiveness in future exchanges.

Table 2

Air Brake Systems Test Results

	Mean	Standard Deviation	Minimum	Maximum	Valid N
Before/After Course					
"Pre" Brake: Before Course	*28.67*	*14.71*	*7*	*52*	*9*
"Post" Brake: After Course	*68.15*	*9.84*	*55*	*80*	*13*

Table 3

Air Brake Systems

T-Test for Paired Samples

	Mean	Standard Deviation	SE of Mean
Before/After Course			
(Number of pairs=9 Correlation=.535 2-tail Sig=.138)			
"Pre" Brake: Before Course	*28.6667*	*14.705*	*4.902*
"Post" Brake: After Course	*69.0000*	*9.823*	*3.274*
Paired Differences			
(t-Value=9.62 df=8 2-tail Sig=.000)	*40.3333*	*12.580*	*4.193*
95% CI (30.661, 50.006)			

Evaluation Results: Instructor Feedback

As stated earlier, SDCCD instructors were asked to provide comments on their experiences. The instructors found their experiences to be quite positive, and they indicated that they would gladly repeat the exchange. At the same time, they did identify some important modifications to the courses and to the organizational and logistical operations for future programs. These are reproduced verbatim in Appendix B and summarized here.

Course Duration and Logistics

Instructors generally said the course was too short for the material to be covered. This was particularly true when equipment was not available or other unforeseen circumstances arose. They recommended that a site visit be conducted immediately prior to the course to assure the availability of needed equipment and materials, or that the classroom space be conducive to learning.

Language Proficiency and Translation

All instructors said their Spanish language abilities, particularly in technical areas, improved. They also said skilled translation was an immense benefit to them and made the courses much more accessible to the students. When translators were not available, they felt that instruction suffered. This, too, was generally confirmed by the students. Both students and instructors cited a greater need for handout materials to be printed in Spanish.

Cultural Understanding

All instructors agreed strongly with the statement that their understanding of Mexican culture and traditions had grown as a result of this experience in Mexico. They indicated a greater understanding of technical training delivery systems, as well as the barriers to and opportunities for modernization in Mexico. Cultural understanding was a highly prized outcome for the Educators Exchange Program, and a valued goal of the Ford Foundation program officer as well.

SUMMARY

As indicated throughout this report, program participants were very pleased with the project. The clear majority of participants found the courses to be timely, relevant, helpful, and useful in improving their understanding of technological changes and their ability to communicate this new learning to their students. Most were tremendously proud that they had been able to participate in this incipient, innovative program; the overwhelming majority indicated they would participate again. Their only concerns paralleled those of SDCCD faculty—equipment and, in some cases, software availability in the Diesel and CAD courses; course duration; room conditions; and translation. The SDCCD faculty suggested that greater coordination could resolve certain equipment availability logistical problems. Also, they felt strongly that while their Spanish had improved, having a skilled translator on a consistent basis was critical to the success of the course and allowed them greater flexibility in promoting student comprehension of course material without the constraints of their own more limited Spanish vocabularies. Overall program participants, CECATI officials, and SDCCD faculty judged the program a resounding success in accomplishing its important goals.

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APPENDIX A

Educators Exchange Project

Participant Evaluation

CECATI Ford Foundation SDCCD

Your opinions and feedback are important. Your responses and comments on this questionnaire will tell us whether this course met your needs and provided you with new skills and knowledge, and the ability to apply these new skills. The information you provide us can help us to improve our training and preparation of other students. Be assured that your responses will remain confidential.

Please take a few minutes to complete this questionnaire. For each of the questions, please circle the one response you feel best describes your opinion or belief. Thank you.

Course Title:_____ **Instructor**:_____

Location:_____ **Date**:_____

BACKGROUND QUESTIONS

1. What is your age?_____
2. Are you **Male** or **Female** ? (Circle correct response)
3. What state of the republic of Mexico are you from? _____
4. Language proficiency **BEFORE** the course:

LANGAUGE	SPEAKING			READING			WRITING			UNDERSTANDING		
	Fair	Good	Excel	Fair	Good	Excel	Fair	Good	Excel	Fair	Good	Excel

5. Language proficiency **AFTER** the course:

LANGAUGE	SPEAKING			READING			WRITING			UNDERSTANDING		
	Fair	Good	Excel	Fair	Good	Excel	Fair	Good	Excel	Fair	Good	Excel

6. Please circle the letter that best describes your reason for attending this course.
   A. To prepare for employment in a new career.
   B. To prepare for job change or advancement in my same career.
   C. To improve my ability to perform at my present job.
   D. To improve my skills, but not necessarily for employment reasons.
   E. To achieve a purpose not listed above.
7. Please indicate the highest degree or certificate you have earned. _____
8. How many years of education have you completed? _____
9. Do you have a physical disability? A. Yes B. No
10. What best describes your father's occupation?

Professional	Technical	Business Proprietor
Clerical	Sales	Craftsman
Farming	Manager	Other _____

11. What best describes your mother's occupation?

Professional	Technical	Business Proprietor
Clerical	Sales	Crafts
Farming	Manager	Homemaker
Other_____		

INSTRUCTOR FEEDBACK

	Strongly Disagree				Strongly Agree
The instructor explains the course material well	1	2	3	4	5
The instructor treats the students with respect and courtesy	1	2	3	4	5
The instructor encourages students, including those experiencing difficulty	1	2	3	4	5
From the beginning, the instructor made the requirements and objectives of this course clear	1	2	3	4	5
The instructor consistently demonstrates strong organizational skills	1	2	3	4	5
The instructor demonstrates knowledge in the subject matter	1	2	3	4	5
The instructor shows interest and enthusiasm in conducting the course	1	2	3	4	5
In this class, I feel comfortable participating and asking questions	1	2	3	4	5
The instructor provided clear and complete answers to questions raised in class	1	2	3	4	5
The instructor used examples and illustrations to teach the course that helped me to better understand new concepts and ideas	1	2	3	4	5
The instructor provided clear summaries of the course content	1	2	3	4	5
The instructor used class time effectively	1	2	3	4	5
The instructor makes specific, useful comments about my work	1	2	3	4	5
The instructor showed respect and appreciation for students of different social and cultural backgrounds	1	2	3	4	5

COURSE CONTENT

The information in this class was presented in a clear, logical, and understandable manner	1	2	3	4	5
I acquired useful knowledge or skills	1	2	3	4	5
I will be able to apply what I learned to my job	1	2	3	4	5
The information presented in this course met my expectations	1	2	3	4	5
Printed materials were clear and understandable	1	2	3	4	5
The training I received was directly applicable to my work and career	1	2	3	4	5
The length of the course was sufficient to meet training objectives	1	2	3	4	5

PROCESS AND ENVIRONMENT

	Strongly Disagree				Strongly Agree
In general, language was **not** a barrier to understanding and applying course material	1	2	3	4	5
In general, cultural differences between myself and the instructor did **not** present any problems in understanding and applying course material	1	2	3	4	5
In general, cultural differences between myself and other students did **not** present any problems in understanding and applying course material	1	2	3	4	5
Classroom work space was comfortable	1	2	3	4	5

IMPACT OF COURSE

My ability to teach and train others will increase as a result of this class	1	2	3	4	5
My personal productivity will increase as a result of what I have learned in this class	1	2	3	4	5
My understanding and appreciation of cultural and language differences has increased as a result of this course	1	2	3	4	5
	Poor				**Excellent**
Overall, I would rate this course as	1	2	3	4	5

COMMENTS

Your feedback and comments on the course are important. Please respond to the following questions:

What are the best things about this course?

How can the course be improved?

What was the most valuable thing you learned?

Additional comments you wish to provide?

APPENDIX B

Course Instructor's Evaluation Responses

Course Instructors:	Course Titles:
Jim Lewis (Instructor 1)	Air Brake Systems (Class #1)
John Conrad (Instructor 2)	Introduction to Technical Ceramics (Class #2)
Jack Bollinger (Instructor 3)	Introduction to CNC & CAD/CAM (Class #3)
Nadine Reid (Instructor 4)	Office Systems (Class #4)

QUESTION 1: WERE YOU ABLE TO ACHIEVE YOUR TRAINING OBJECTIVES? WHY OR WHY NOT?

Instructor 1 - Yes, but with varying degrees of success. The first sections of the class went relatively O.K. and the technical objectives were met. In the Air Brake Systems section, the objectives were met but only with great difficulty due to equipment problems. Anyone doing this better be flexible and resourceful, with strong self-direction.

Instructor 2 - More demonstrations, lectures, class discussions and presentations were achieved than what was originally scheduled. The students' interest and enthusiasm was enormous and they wanted more technical data. We were forced to change and add projects, and undertake other projects in a different order than originally planned, because materials arrived late from the factory in Mexico and clay took longer to dry with the frequent rain.

Instructor 3 - Overall yes, but not all objectives. Computers were not strong enough for some software.

Instructor 4 - Yes. By pairing students at the computer. Literate with non-literate.

QUESTION 2: WAS THE LENGTH OF THE TRAINING PROGRAM ADEQUATE TO MEET THE COURSE OBJECTIVES? PROVIDE ADDITIONAL COMMENTS AS NECESSARY.

Instructor 1 - For this class, I would have two separate sessions of two weeks each. The transition from basic brake mechanical to pneumatic systems was a tough transition for the students.

Instructor 2 - The length of the program was adequate for the objectives but the students wanted more than the time would allow. On some days, the students arrived early and stayed late to complete the projects.

Instructor 3 - The course should have been two weeks longer and I should have gone in one week ahead to install software and configure lab site.

Instructor 4 - Length of training program was adequate for an overview only of software and other basic teaching materials.

QUESTION 3: WHAT COULD HAVE OR SHOULD HAVE BEEN DONE TO IMPROVE THE PROGRAM FROM YOUR PERSPECTIVE AS A CLASSROOM INSTRUCTOR?

Instructor 1 - More material already translated. Provide safety glasses for each student. Fluent translator. Obtain editions of text in Spanish (Schultz, Diesel Equipment) for each student. About two weeks or even one week before class, we need to make an inspection to be sure the materials required are in place and ready to go. This is the only stick we have to go with the carrot.

Instructor 2 - In the future, when ordering from Mexican ceramic materials factories, we should request they ship the materials to arrive by a particular date. When ordering materials, very specific requirements need to be made about the materials. As an example, the frit shipped from Mexico Ferro Frit Company was very granular instead of powdered. Have several back-up interpreters available should the interpreter not show up.

Instructor 3 - Better focus on air conditioning, readily available supplies, curtains in the windows.

Instructor 4 - Teaching materials presented in Spanish—more information could have been covered and better skills developed by participants. However, at the end of the three-week workshop, participants appeared to have been pleased with their accomplishments. The instructor was aware that more learning could have taken place if teaching materials were in Spanish or if participants/instructor were more literate in English/Spanish.

QUESTION 4/5: LANGUAGE PROFICIENCY BEFORE/AFTER THE COURSE:

Instructor	Speaking	Reading	Writing	Understanding
Instructor 1	Poor/Fair	Poor/Fair	Poor/Fair	Poor/Fair
Instructor 2	Poor/Poor	Fair/Better	Poor/Poor	Fair/Better
Instructor 3	Poor/Better	Poor/Poor	Poor/Poor	Poor/Better
Instructor 4	Fair/Fair	Fair/Good	Fair/Good	Good/Good

QUESTION 6: DURING YOUR STAY, HOW WOULD YOU RATE YOUR KNOWLEDGE OF LOCAL CUSTOMS AND TRADITIONS?:

(Scale = Increased / Stayed the same / Decreased)

Instructor 1 - Increased

Instructor 2 - Increased

Instructor 3 - Vastly increased

Instructor 4 - Increased

QUESTION 7: KNOWLEDGE OF TRAINING DELIVERY SYSTEMS IN MEXICO:

Instructor 1 - Increased

Instructor 2 - Increased

Instructor 3 - Vastly increased

Instructor 4 - Increased

QUESTION 8: WHAT WERE YOUR LIVING ARRANGEMENTS WHILE IN MEXICO?

Instructor 1 - Hotel, good location, but I would have liked a lock on the door. I think for more than a couple of days, a first class hotel is a requisite. This is your only refuge without the normal personal support systems.

Instructor 2 - Local hotel was within walking distance of the CECATI, town central, and bus depot. Meals provided by the hotel, faculty, secretaries, and factory owners.

Instructor 3 - Hotel

Instructor 4 - Resided in hotels provided by the Mexican administrators.

QUESTION 9: DESCRIBE OTHER ACTIVITIES YOU DID WHILE IN MEXICO OTHER THAN TEACHING SUCH AS TOURING, SIGHTSEEING, VISITING WITH STUDENTS, OTHER FACULTY, ETC.

Instructor 1 - Spent some time with students. Did some sightseeing with a couple of the students and CECATI directors. Spent time in the garden, much coffee and talk and traveling around the city. The faculty from San Diego needed some "mental health" meetings on weekends to de-pressurize. There is a feeling of always being "on duty."

Instructor 2 - Class time was from noon to 6:00. Most mornings were arranged for one or more factory tours and often having breakfast after the tour. Several evenings invited to dinner and socializing with faculty or secretaries' families. On the off days, the faculty gave a walking tour of town and we watched World Cup Soccer games on TV at their homes. Invited to first communion and reception for the daughter of Jose C. Muñoz Garcia in Celaya. Day tours of San Miguel, Guanajuato, and Santa Clara (Mich.).

Instructor 3 - Touring, giving demonstrations to companies and other groups, visiting.

Instructor 4 - Traveled by plane to several large cities. Considerable sightseeing was provided by Mexican administrators. Toured the main business sections of the cities extensively. Developed a greater appreciation of the Mexican culture by visiting homes and schools and by using public transportation, getting lost, communicating with street persons to find way back to starting place. A real challenge.

APPENDIX C

SAN DIEGO COMMUNITY COLLEGE DISTRICT
FORD FOUNDATION
MEXICO EDUCATIONAL EXCHANGE PROJECT
FINAL FINANCIAL STATEMENT

	STAFF STIPENDS	TRAVEL/ PER DIEM	EVALUATION STUDY	TOTAL
ORIGINAL BUDGET	12,500	5,000	2,500	20,000
Budget Transfer (5/19/94)	(540)	540		0
REVISED BUDGET	11,960	5,540	2,500	20,000
EXPENSES	SALARY/ BENEFITS	TRAVEL		
Jack Bollinger		1,047		1,047
Jim Lewis		905		905
Jack Bollinger	3,132	896		4,028
John Conrad	4,493	897		5,388
Jim Lewis	2,288	914		3,184
Nadine Reid	1,208	876		2,084
Research & Planning Department[1]	839	5	992	1,836
Evaluation Report (Printing and Typesetting)			1,508	1,508
TOTAL EXPENSES	11,960	5,540	2,500	20,000
REMAINING BALANCE	0	0	0	0

(1) This total, of $1,836, was to reimburse the Research and Planning Department for their work in development of the Evaluation Study. The expenses include travel and salaries for meetings with administrators and teachers in Mexico, research, survey design and implementation, interviews, and writing of the report.

CERTIFICATION:

I certify that the information contained herein is accurate and properly classified in accordance with the terms and conditions of the contract and financial records of this agency.

Authorized Signature: _____ Date: 11/29/94

Name and Title: Manuel R. San Miguel
Assistant Chancellor, Business Services

Appendix C

OFFICE OF THE VICE CHANCELLOR
October 5, 1994

Educators Exchange: A Program Evaluation

Research and Planning Office

San Diego Community College District

3375 Camino del Rio South

San Diego, CA 92108-3883